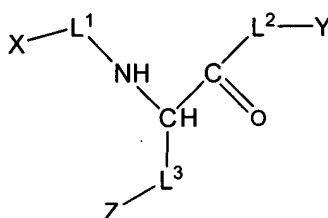


This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

- 1 1. (Currently Amended) A heterofunctional crosslinking reagent having
2 the formula:



3 wherein

4 L^1 ~~[[,]]~~ **and** L^2 ~~and~~ L^3 are each independently selected from the group consisting of a
5 bond, a substituted or unsubstituted ($\text{C}_2\text{-C}_{24}$) alkylene group, a substituted or
6 unsubstituted ($\text{C}_2\text{-C}_{24}$) heteroalkylene group, a polyethyleneglycol group, a
7 polyalcohol group, a polyamine group, a polyester group and a
8 polyphosphodiester group;

9 **$-\text{L}^3\text{-Z}$ is an optionally protected amino acid side chain having a pendant reactive**
10 **group, said reactive group selected from the group consisting of lysine,**
11 **cysteine, serine, aspartic acid, glutamic acid, and threonine;**

12 X is a non-covalent protein tag binder that specifically binds to a protein tag portion
13 of a protein; **and**

14 Y is a photoactivatable covalent crosslinking group adapted to covalently link the
15 heterofunctional crosslinking reagent at or adjacent to said protein tag, **said**
16 **said photoactivatable covalent crosslinking group is a member selected**
17 **from the group consisting of aryl ketones, azides, diazo compounds,**
18 **diazirenes, and ketenes;** ~~and~~

19 ~~Z is a protected or unprotected chemical crosslinking group that covalently links~~
20 ~~the heterofunctional crosslinking reagent to a label or support wherein Z~~
21 ~~is rendered inactive when protected.~~

1 2.-4. (Canceled)

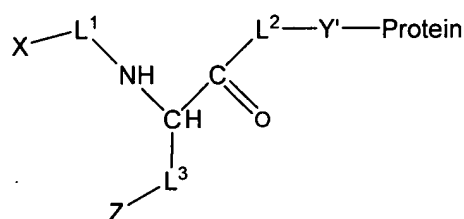
1 5. (Original) A heterofunctional crosslinking reagent of claim 1, wherein
2 L¹ is a cleavable linking group.

1 6.-8. (Canceled)

1 9. (Original) A heterofunctional crosslinking reagent of claim 1, wherein
2 X is selected from the group consisting of metal chelating groups, peptides, an
3 organoarsenical moiety and small molecule ligands or inhibitors.

1 10.-25. (Canceled)

1 26. (Currently Amended) A protein conjugate comprising a protein and a
2 heterofunctional crosslinking reagent, said conjugate having the formula:



3 wherein

4 L¹ [[,]] and L² ~~and L³~~ are each independently selected from the group consisting of a
5 bond, a substituted or unsubstituted (C₂-C₂₄) alkylene group, a substituted or
6 unsubstituted (C₂-C₂₄) heteroalkylene group, a polyethyleneglycol group, a
7 polyalcohol group, a polyamine group, a polyester group and a
8 polyphosphodiester group;

9 -L³-Z is an optionally protected amino acid side chain having a pendant reactive
10 group, said reactive group selected from the group consisting of lysine,
11 cysteine, serine, aspartic acid, glutamic acid, and threonine;

12 X is a non-covalent protein tag binder that specifically binds to a protein tag portion
13 of a protein; and
14 Y' is the residue of a photoactivatable covalent crosslinking group after formation of a
15 covalent linkage to said protein, said photoactivatable covalent crosslinking
16 group covalently attached at or adjacent to said protein tag, said
17 photoactivatable covalent crosslinking group is a member selected from
18 the group consisting of aryl ketones, azides, diazo compounds, diazirenes,
19 and ketenes; and
20 ~~Z is a protected or unprotected chemical crosslinking group that covalently links~~
21 ~~the heterofunctional crosslinking reagent to a label or support wherein Z~~
22 ~~is rendered inactive when protected.~~

1 27. (Original) A protein-conjugate comprising a protein and a covalently
2 attached heterofunctional linking group of claim 1.

1 28.-77. (Canceled)

1 78. (Previously presented) A heterofunctional crosslinking reagent of
2 claim 1, wherein X is an antibody or antibody fragment.